Implementation and performance in shallow water of the B/Gamma breaking onset and dissipation criteria in a fully nonlinear potential flow model

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In this work, we discuss the implementation in an existing fully nonlinear potential flow model (a.k.a., Numerical Wave Tank; NWT) and the performance of a breaking onset detection criterion based on the $B = u/c$ parameter (relative water to wave velocity at the crest) coupled to an energy dissipation (Gamma) based on hydraulic jump analogy or on a recently proposed parameterization function of dB/dt. In this talk, in particular, we focus on analyzing and discussing wave geometry and fluid kinematics predicted at the time of breaking onset, for a few types of waves (e.g., solitary, periodic) and bottom geometry (e.g., slope, bar). Results are compared with experimental data and simulations using other numerical models (e.g., Boussinesq-type).